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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

TRAN, KHANH C

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/031,034

Applicant(s)

HAUPTMANN ET AL.

Examiner

Khanh Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/28/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Preliminary Amendment filed on 01/15/2002 has been entered. Claims 12-22 are pending in this Office action.

Specification

2.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.

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- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Objections

3. Claim 12 is objected to because of the following informalities: in line 5, "tegether" should be changed to -- together --; in lines 5-6, "a low-frequency narrowband" should be changed to -- broadband --; in line 9, "digital/analog" should be changed to -- digital-to-analog --; in line 11, "digital/analog" should be changed to -- digital-to-analog --; in line 16, "analog/digital" should be changed to -- analog-to-digital --; in line 21, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

4. Claim 13 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

5. Claim 15 is objected to because of the following informalities: in line 2, "high-path" should be changed to -- high-pass --; in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

6. Claim 16 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

7. Claim 17 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

8. Claim 18 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

9. Claim 19 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

10. Claim 20 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

11. Claim 21 is objected to because of the following informalities: in line 2, "analog/digital" should be changed to -- analog-to-digital --. Appropriate correction is required.

12. Claim 22 is objected to because of the following informalities: in line 2, "digital/analog" should be changed to -- digital-to-analog --. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language.

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This claim is an omnibus type claim. Examiner's comments: the Examiner does not know what a line terminating device comprises as set forth in the application claim.

14. Claims 13-22 are also rejected for being dependent on claim 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amrany et al. U.S. Patent 6,067,316 in view of Kahl et al. U.S. Patent 5,969,567.

Regarding claim 12, Amrany et al. invention is directed to a method for a communication to communicate both POTS and XDSL are provided. In column 6, line 20 to column 7 line 25, figure 4 illustrates the primary circuit design of an improved line card circuit in accordance with Amrany et al. teachings. The line card circuit combines the POTS signal and xDSL signals are combined into a single channel having a receive side and a transmit side.

On the transmit side, digital PCM data is received from the digital switch 50 (See FIG. 2) and expanded according to an A-law or mu-law algorithm at 120. Similarly, the xDSL signal received from the digital switch 50 may be passed

through a similar block 122 for any transmit shaping that may be necessary.

These signals are then combined by adder 124 (or modulator) and delivered to a digital to analog converter 126. Adder 124 corresponds to the claimed digital frequency cross over unit.

On the receive side, the analog signal is passed through a programmable gain amplifier 142 and then an analog to digital converter 144. The output of the analog to digital converter 144 is routed to both an xDSL output and a PCM output. A band-pass filter 148 (or high-pass filter) operates to filter out the lower frequency voice band signals, and thus delivers signals within the xDSL frequency band to the xDSL output. The output of the analog to digital converter 144 is routed to a low pass filter 150, which serves to filter out the higher frequency xDSL signals, as well as noise signals, to deliver only that information in the voice frequency band to the PCM output.

Amrany et al. does not expressly teach an analog-to-digital converter is provided at the end of each of the two analog paths for conversion to respectively corresponding digital signals.

Nevertheless, Amrany et al. teachings combines the receive sides of figure 3 prior art, which employs separate analog-to-digital converter on each receive path (e.g. PCM data and xDSL data), so that only one analog-to-digital converter is needed. However, it would have been obvious for one of ordinary skill in the art at the time of the invention that Amrany et al. teachings can be modified to use an analog-to-digital converter on each path. Motivation was

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taught in figure 3 prior art. Furthermore, the modification would not render Amrany et al. teachings unsatisfactory for its intended use because an analog-to-digital converter is still required to convert the analog signal into digital signal.

Referring to figure 4, Amrany et al. teaches block 160 providing an echo estimation / cancellation function between the transmit side and receive side. Block 160 corresponds to the claimed balance filter. However, Amrany et al. does not teach that a balance filter which is driven by the second analog broadband signal is arranged between the transmission path after the output of the digital-to-analog converter and the subtraction input of a subtraction element which is connected upstream of the analog-to-digital converter in the separate analog data signal path of the reception path as claimed in the application claim. Kahl et al. invention is directed to a circuit configuration for line adaptation and echo suppression includes a balance filter, which is triggered by transmission signals and supplies output signals that are linked through a subtractor to a reception signal. Figure illustrates the circuit configuration including a balance filter 6a having an input receiving the transmission signal and an output coupled to the subtractor 8, which is connected in the upstream of the analog-to-digital converter 3. Amrany et al. and Kahl et al. teachings are in the same field of endeavor, and both inventions teach the use of echo suppression. Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention that Amrany et al. line card circuit can be modified to implement the balance filter as taught in Kahl et al. invention for echo suppression.

Motivation is suggested in column 7, lines 25-37, Amrany et al. teaches that it will be appreciated that known concepts such as echo estimation and cancellation may be performed in the line card circuitry of the present invention, using procedures that are understood by those skilled in the art. Since echo cancellation is known in the art and need not be uniquely performed for implementation in connection with the present invention, it need not be described further herein, other than to recognize that it may be implemented in connection with the present invention.

Regarding claim 13, referring to figure 4, in column 6, lines 63 via column 7, line 10, the receive side further includes a programmable gain amplifier 142.

Regarding claim 14, referring to the Figure in Kahl et al. invention, the balance filter 6a is an analog filter.

Regarding claim 15, in column 7, lines 10-25, Amrany et al. teaches that a band-pass filter or high-pass filter operates to filter out the lower frequency voice band signals.

Regarding claims 16-19, as recited in claim 12, referring to figure 4 of Amrany et al. invention, a band-pass filter 148 (or high-pass filter) operates to filter out the lower frequency voice band signals, and thus delivers signals within the xDSL frequency band to the xDSL output. The output of the analog to digital converter 144 is routed to a low

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pass filter 150, which serves to filter out the higher frequency xDSL signals, as well as noise signals, to deliver only that information in the voice frequency band to the PCM output.

Regarding claims 20-21, as recited in claims 12 and 16, the output of the analog to digital converter 144 is routed to a low pass filter 150, which serves to filter out the higher frequency xDSL signals, as well as noise signals, to deliver only that information in the voice frequency band to the PCM output.

Regarding claim 22, in column 6, lines 45-63, the outgoing analog signal is then passed through an equalization filter 128, which is filtered to provide greater emphasis on high frequency signals (by amplifying) than on the lower frequency, POTS signals. The signal output from the equalization filter 128 is then passed through line driver 130 and applied at 110 to the local loop 24. In light of the foregoing teachings, equalization filter 128 and line driver 130 constitutes the claimed power adaptation circuit.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

O'Toole et al. U.S. Patent 5,889,856 discloses ADSL Integrated Line Card With Digital Splitter And POTS CODEC Without Bulky Analog Splitter".

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Khanhcong Tran

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